

charge any additional fee required for the extension, and credit any overpayment, to Deposit Account 06-1205.

II. This is in response to the Office Action dated March 13, 2001, the period for reply having been extended by the above petition and payment of the extension fee. Please amend the claims as follows and consider the following remarks.

In the Claims:

Please cancel claims ~~2, 5, 8, 10, 22, 25, 28, 87~~ and 92 without prejudice or disclaimer.

Please amend claims 1, 3, 6, 7, 13, 14, 21, 23, 26, 27, 29, 33, 34, 52, 57 and 88-91 to read as follows. A marked-up copy of claims 1, 3, 6, 7, 13, 14, 21, 23, 26, 27, 29, 33, 34, 52, 57 and 88-91, showing the changes made thereto, is attached.

B1.

1. (Twice Amended) A method of producing a semiconductor member comprising the steps of:

- forming a porous layer in a surface region of a first substrate;
- forming a first semiconductor layer on the porous layer by liquid phase epitaxy using a melting solution in which elements for forming the first semiconductor layer to be grown are dissolved up to a supersaturated state or a substantially supersaturated state under a reducing atmosphere;
- forming a second semiconductor layer on the first semiconductor layer by liquid phase epitaxy;

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bonding the first substrate to a second substrate to obtain a multiple layer structure with the second semiconductor layer positioned inside; and

separating the first substrate from the multiple layer structure by utilizing the porous layer to transfer the first and second semiconductor layers to the second substrate.

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3. (Amended) A method according to claim 1, further comprising a step of removing the porous layer remaining on the surface of the first substrate after the first substrate is separated from the multiple layer structure.

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6. (Amended) A method according to claim 1, wherein the liquid phase epitaxy includes that a melting solution in which elements for forming the first or second semiconductor layer to be grown are dissolved is brought in contact with the porous layer.

7. (Amended) A method according to claim 1, wherein the liquid phase epitaxy includes that a melting solution in which elements for forming the first or second semiconductor layer to be grown are dissolved is brought in contact with an epitaxial layer formed on the porous layer.

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13. (Amended) A method according to claim 1, further comprising a step of providing a third substrate on a separate surface for transferring the first and second semiconductor layers to the second substrate.

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14. (Amended) A method according to claim 13, further comprising a step of separating the second substrate to transfer the first and second semiconductor layers onto the third substrate.

B5

21. (Twice Amended) A method of producing a solar cell comprising the steps of:

forming a porous layer in a surface region of a first substrate;

forming a first semiconductor layer on the porous layer by liquid phase epitaxy using a melting solution in which elements for forming the first semiconductor layer to be grown are dissolved up to a supersaturated state or a substantially supersaturated state under a reducing atmosphere;

forming a second semiconductor layer on the first semiconductor layer by liquid phase epitaxy;

bonding the first substrate to a second substrate to obtain a multiple layer structure with the second semiconductor layer positioned inside; and

separating the first substrate from the multiple layer structure by utilizing the porous layer to transfer the first and second semiconductor layers to the second substrate.

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23. (Amended) A method according to claim 21, further comprising a step of removing the porous layer remaining on the surface of the first substrate after the first substrate is separated from the first and second semiconductor layers.

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26. (Amended) A method according to claim 21, wherein the liquid phase epitaxy includes that a melting solution in which elements for forming the first semiconductor layer to be grown are dissolved is brought in contact with the porous layer.

27. (Amended) A method according to claim 21, wherein the liquid phase epitaxy includes that a melting solution in which elements for forming the second semiconductor layer to be grown are dissolved is brought in contact with an epitaxial layer formed on the porous layer.

29. (Twice Amended) A method of producing a solar cell comprising the steps of:

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- forming a porous layer in a surface region of a first substrate;
- forming a first semiconductor layer on the porous layer by liquid phase epitaxy under a reducing atmosphere;
- forming a second semiconductor layer on the first semiconductor layer by liquid phase epitaxy;
- bonding the first substrate to a second substrate to obtain a multiple layer structure with the second semiconductor layer positioned inside; and
- separating the first substrate from the multiple layer structure by utilizing the porous layer to transfer the first and second semiconductor layers to the second substrate;

sub C1 Out
B8 Cnt
Cancelled

wherein the liquid phase epitaxy includes that a melting solution in which elements for forming the first semiconductor layer to be grown are dissolved up to a desired concentration is used and the melting solution is brought in contact with a surface of the porous layer while a surface temperature of the porous layer is made lower than a temperature at which elements in the melting solution having the desired concentration are saturated.

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33. (Amended) A method according to claim 21, further comprising a step of providing a third substrate on a separate surface for transferring the first and second semiconductor layers onto the second substrate.

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34. (Twice Amended) A method according to claim 33, further comprising a step of separating the second substrate to transfer the first and second semiconductor layers onto the third substrate.

sub C1 Out
B11 Cnt
Cancelled

52. (Amended) A method of producing a semiconductor member comprising the steps of:

- (a) forming a porous layer in a surface region of a first substrate;
- (b-1) immersing the porous layer into a melting solution in which elements for forming a first semiconductor layer to be grown is dissolved up to a supersaturated state or a substantially supersaturated state under a reducing atmosphere to grow the first semiconductor layer on a surface of the porous layer;

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(b-2) forming a second semiconductor layer by liquid phase epitaxy;

(c) bonding a second substrate onto a surface side of the first substrate on which at least the porous layer and the first semiconductor layer are formed; and

(d) separating the first substrate from the second substrate at the porous layer to transfer the first and second semiconductor layers separated from the first substrate to the second substrate.

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57. (Amended) A method of producing a semiconductor member comprising the steps of:

(a) forming a porous layer in a surface region of a first substrate;

(b-1) immersing, into a melting solution in which elements for forming a first semiconductor layer to be grown is dissolved up to a desired concentration, the porous layer whose surface temperature is made lower than a temperature at which the melting solution having the desired concentration is saturated, to grow the first semiconductor layer on a surface of the porous layer under a reducing atmosphere;

(b-2) forming a second semiconductor layer by liquid phase epitaxy;

(c) bonding a second substrate onto a surface side of the first substrate on which at least the porous layer and the first semiconductor layer are formed; and

(d) separating the first substrate from the second substrate at the porous layer to transfer the first and second semiconductor layers separated from the first substrate to the second substrate.

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Cont

88. (Amended) A method according to claim 29, further comprising a step of removing the porous layer remaining on the surface of the first substrate after the first substrate is separated from the transferred semiconductor layers.

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89. (Amended) A method according to claim 29, wherein the liquid phase epitaxy is conducted under a reducing atmosphere comprising hydrogen gas.

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90. (Amended) A method according to claim 29, wherein the liquid phase epitaxy includes that a melting solution in which elements for forming the first or second semiconductor layer to be grown are dissolved is brought in contact with the porous layer.

91. (Amended) A method according to claim 29, wherein the liquid phase epitaxy includes that a melting solution in which elements for forming the first or second semiconductor layer to be grown are dissolved is brought in contact with an epitaxial layer formed on the porous layer.

Remarks

The claims are 1, 3, 6, 7, 11-21, 23, 26, 27, 29-67, 82-86, 88-91 and 93-110, with claims 1, 21, 29, 52, 57, 82 and 85 being independent. Claims 2, 5, 8, 10, 22, 25, 28, 87 and 92 have been cancelled without prejudice or disclaimer. Claims 1, 3, 6, 7, 13, 14, 21, 23, 26, 27, 29, 33, 34, 52, 57 and 88-91 have been amended to better define the invention. Reconsideration of the present claims is respectfully requested.